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10/677,110	10/01/2003	Gordon Y. Li	81373785US01 (02CXT0017D)	4291

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NXP, B.V.
NXP INTELLECTUAL PROPERTY DEPARTMENT
M/S41-SJ
1109 MCKAY DRIVE
SAN JOSE, CA 95131

EXAMINER
SAWAGED, SARI S

ART UNIT	PAPER NUMBER
2423	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ip.department.us@nxp.com

Office Action Summary	**Application No.** 10/677,110	**Applicant(s)** LI ET AL.
	Examiner SARI SAWAGED	**Art Unit** 2423

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _24 October 2008_.
2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1 and 3-14_ is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) _1 and 3-14_ is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a)☐ All b)☐ Some * c)☐ None of:
1.☐ Certified copies of the priority documents have been received.
2.☐ Certified copies of the priority documents have been received in Application No. _____.
3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claim 10/24/2008 have been considered but are moot in view of the new ground(s) of rejection.

Claim 2 has been canceled.

Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 6, 8, 9, 10, 11, 12, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lavaud et al (hereinafter referred to as Lavaud) (US Pat. No. 7,024,682) in view of Vogel et al. (hereinafter referred to as Vogel) (US Pat No. 6,804,262) (of record).

Claims 1:

Lavaud discloses a method comprising:

performing a fast scan (item 308 fig. 3a where 8MHz channels are attempted to be acquired) of each channel in a list of candidate channels (see “scan list, items 304 and

306 in fig. 3a) for supporting cable modem services (see “high-speed data transmission” and “HDTV” in col. 3 ll. 36-50 and “cable modem 102” col. 4 ll.1-11),

the fast scan including the step of considering a first operating state of the cable modem (see “acquire 64 QAM” in item 308);

and attempting to acquire at least one valid channel during the fast scan (see “YES” decision, item 310 in fig. 3a and “downstream signal is acquired from one of the preset channels” in col. 8 ll. 27-35); and,

in response to not acquiring at least one valid channel during the fast scan (see “NO” decision, item 310 in fig. 3a),

performing a slow scan of each channel in the list for each present channel (slow scan comprising items 306-316 of fig. 3a)(see “tuner 112 is kept at the same channel frequency and both 64QAM and 256 QAM signal acquisition is attempted for a 6 MHz wide, Annex - B downstream signal" and "steps 306 through 316 are sequentially repeated for each channel in the list, until either a downstream signal is acquired from one of the preset channels…” in col. 8 ll. 8-35), the slow scan of each channel in the list including the steps of identifying valid channels by considering a plurality of additional operating states of the cable modem (see “acquire 64 and 256 QAM" in item 312 in fig.

3a; wherein 64 QAM acquisition is an operating state of the cable modem and 256 QAM is another operating state of the cable modem);

and attempting to acquire at least one valid channel by the slow scan (see “YES” decision, item 314 in fig. 3a “downstream signal is acquired from one of the preset channels” in col. 8 ll. 27-35).

Lavaud doesn’t disclose “identifying *potentially* valid channels”.

Vogel, an inventor from the same or a similar field, discloses first identifying digital channels (see item 322 in fig. 7)(which reads on “identifying potentially valid channels”) from analog (item 318 in fig. 7) and inactive channels (item 413 in fig. 7) since these channels don't support cable modem services (see col. 12 ll. 26-34, col. 15 ll. 6-11) and then attempting to acquire only the digital channels (identified potentially valid channels) for the benefit of skipping over analog and inactive channels (invalid channels), thereby making channel acquisition faster (see “instead of demodulating a large number of channels, most of which are likely to be analog television channels rather than digital channels…. And “it is typically faster to take power measurements than to attempt QAM signals” in col. 16 ll. 48-59).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the “cable modem channel scanning and acquisition method, including the fast scan and the slow scan" Of Lavaud with the method of “identifying potentially valid channels” of Vogel for the benefit of skipping over invalid channels (analog and inactive channels) thereby making channel acquisition faster, as disclosed by Vogel.

Claim 6:

Lavaud and Vogel disclose the method of claim 1 as discussed previously.

Lavaud teaches a scan list that stores a list of preset channels in the cable modem memory, wherein these channels may be frequently utilized (see col. 7 ll. 40-65). Lavaud discloses that the channels on the scan list are scanned first when attempting to acquire a valid channel. The scan list disclosed by Lavaud meets the limitation of “the method first attempts to acquire channels on a golden list of channels that are likely to support cable modem services”.

Claim 8:

Lavaud and Vogel disclose the method of claim 6 as discussed previously.

Vogel teaches a method where the cable modem classifies channels as inactive, analog, or digital. (See Column 14 Lines 1-11 and Column 15 Lines 52-55 and 65-67 and Column 16 Lines 11-16). Once the cable modem has classified the channels, the cable modem does not attempt to acquire the inactive, the analog, or any other channels that are not likely to support cable modem services. The classification list of inactive and especially analog channels is effectively a black list.

Claim 9:

Lavaud and Vogel disclose the method of claim 8 as discussed previously.

Vogel discloses when a channel plan determination has been made, the cable modem stores it in non-volatile memory and then proceeds to classify and acquire channels in this channel plan, effectively ignoring channels outside of the channel plan (See Column 74 Lines 1-11 and Column 15 Lines 52-55 and 65-67 and Column 176 Lines 11-16).

Claim 10:

Lavaud and Vogel disclose the method of claim 9 as discussed previously.

Vogel discloses if the cable modem was not able to make a channel plan determination (because the cable modem was used in countries that have different standards) the cable modem can scan the frequencies spanning the entire anticipated downstream bandwidth. The cable modem can classify all channels and store the information in nonvolatile memory. Once all the channels have been classified there is no need to scan channels that are on the blacklist or the channels outside the frequency plan (if a plan was determined) (See Column 14 Lines 1-11 and Column 15 Lines 52-55 and 65-67 and Column 76 Lines 11-16).

Claim 11:

Lavaud and Vogel disclose the method of claim 1 as discussed previously.

Lavaud discloses wherein the slow scan step comprises considering both the first operating state and a second operating state of a cable modem (in Fig. 3a of Lavaud, the first operating state, 64 QAM in item 308 of fig. 3a, is inherently considered since a determination step is made as to whether a signal was found before moving on to a second operating state, for example “QAM 64” in item 312 of fig. 3a), wherein the second operating state indicates the presence of a valid channel and is different from the first operating state (QAM 64 in item 308 of fig. 3a and QAM 64 in item 312 differ in that item 308 relates to 8MHz channels and item 312 of fig. 3a relates to 6MHz channels).

Claim 12:

Lavaud and Vogel disclose the method of claim 1 as discussed previously.

The slow scan of Lavaud and Vogel inherently scans at a slower speed than the fast scan since additional states are considered in addition to the fast scan states, therefore, requiring more time.

Claim 14:

Lavaud and Vogel disclose the method of claim 1 as discussed previously.

Lavaud discloses wherein the slow scan mode scans the plurality of operating states even when the first operating state does not indicate the presence of a valid channel (in fig. 3a the slow scan item 312 scan the plurality of operating states, for example 64 QAM and 256QAM, even if the first operating state, for example 64 QAM in item 308 of fig 3a doesn't indicate the presence of a valid channel (see NO decision of item 310)).

4. Claims 3 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lavaud in view of Vogel in further view of Desai et al. (hereinafter referred to as Desai) (US Pat. No. 7,139,247) (of record).

Claim 3:

Lavaud and Vogel disclose the method of claim 1 as discussed previously.

Lavaud discloses a first operating state of a cable modem, for example see “acquire 64 QAM” in item 308, as discussed in the rejection of claim 1.

Neither Lavaud nor Vogel disclose an “AGC lock state”.

Desai, an inventor from the same or a similar field, discloses considering a plurality of operating states of a plurality of components when establishing communication in a cable modem wherein the first operating state is an AGC lock state (see Figs 50, 51 and Col. 56 line 29- Col. 57 line 55; Desai discloses an AGC lock state, PLL lock which is indicated by Carrier SYNC (CS) flag, and a demodulator lock which is indicated by a framing (FS) flag. Figures 50 and 51 show a diagram of the steps taken to achieve communication with the head-end). Desai discloses first checking the AGC lock state before attempting other actions to establish communication because if a signal power level is below the AGC-lock limit, then a signal MAY not be present at all (see Col. 56 lines 38-42).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the “cable modem channel scanning and acquisition method including a first operating state of a cable modem” of Lavaud and Vogel to have the first operating state as the AGC lock state as disclosed by Desai because, the AGC lock state indicates that a signal MAY be present as disclosed by Desai (see Col. 56 lines 38-42). If the AGC lock indicates that a signal MAY be present, then other actions to attempt to acquire a signal/channel are warranted instead of attempting to demodulate every channel.

Claim 13:

Lavaud and Vogel disclose the method of claim 1 as discussed previously.

Lavaud discloses a plurality of operational states, as discussed in the rejection of claim 1.

However, neither Lavaud nor Vogel disclose wherein the plurality of additional operating states of the modem includes a lock state of a demodulator and a PLL lock of a PLL.

Desai, an inventor from the same or a similar field, discloses a cable modem channel acquisition method wherein the plurality of operating states of the cable modem include a lock state of a demodulator and a PLL lock state. The PLL lock is indicated by Carrier SYNC (CS) flag and the demodulator lock which is indicated by a framing (FS) flag (see Figs 50, 51 and Col. 56 line 29- Col. 57 line 55).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the “cable modem channel scanning and acquisition method” of Lavaud and Vogel to include a “a lock state of a demodulator and a PLL lock state” for the benefit of making it easier to indicate the status of common cable modem components.

5. Claims 4, 5, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lavaud in view of Vogel in further view of Furuta (US Pub No. 2002/0073433 A1).

Claims 4, 5:

Lavaud and Vogel disclose the method of claim 1 as discussed previously.

Lavaud and Vogel do not disclose a last known good channel.

Furuta, an inventor from the same or a similar field, discloses that when the cable modem finds a viable frequency, that the frequency is recorded in the frequency cache and if the power supply to the cable modem is disconnected for some reason, that this frequency is recognized from the frequency cache and the cable modem is quickly restored to communicate with the CMTS without performing the frequency search again. This is effectively the last known good channel (See Page 2 Paragraph 002)

Furuta further discloses that if the downstream carrier is lost, the cable modem
Can search by:

I. Only the channels recorded in the frequency cache.

II. A predetermined number of channels for the downstream frequency; search a predetermined part of the frequency cache, *repeating these search by turns (periodically attempts to acquire the last known good channel, which reads on "during the same acquisition attempt").*

III. Only the frequency bands recorded in the frequency cache in order to reduce the bandwidth of frequency band to be searched, namely skipping other bands.
(See Page 3 Paragraphs 0040-0043)

By searching a predetermined number of channels and then repeating the search, the last known good channel is going to be periodically visited. The programmable channel hop depth is equivalent to the number of channels or frequencies that are predetermined in Furuta's method.

It would have been obvious to one of ordinary skill to modify "the cable modem channel scanning and acquisition method" of Lavaud and Vogel with method "wherein the first channel considered is the last known good channel, and wherein, during the same acquisition attempt, the method periodically returns to and attempts to acquire the last known good channel" and "wherein the frequency of attempts to acquire the last known good channel is determined by a programmable channel hop depth" of Furuta's for the benefit of decreasing channel acquisition time since the last known good channel is going to be the most likely channel for communication as disclosed by Furuta (See Page 2 Paragraph 002).

Claim 7:

Vogel and Desai disclose the method of claim 6 as discussed previously. Vogel teaches a method where the cable modem classifies channels as inactive, analog, or digital. Once the cable modem has found a valid downstream data channel that it can use, it stores the channel information in nonvolatile memory for later use. This is a golden list of channels that are likely to support cable modem services plan (See Column 14 Lines 1-11 and Column 15 Lines 52-55 and 65-67 and Column 16 Lines 11-16).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

-Scarpa (US Pat. No. 6,668,027) discloses that AGCs use power measurements and power reference levels. see “power estimate”, “power reference level”, “signal power” col. 2 ll. 4-13 (disclosed as prior art) and col. 4 ll. 14-18 and “AGC lock signals” col. 7 ll. 22-29.

-Broadcom Corporation -BCM3300 Product Brief discloses information regarding the power measurement component disclosed by Vogel.

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SARI SAWAGED whose telephone number is (571)270-5085. The examiner can normally be reached on Mon-Thurs, 9:00AM-5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, ANDREW KOENIG can be reached on (571) 272-7296. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Son P Huynh/ January 14, 2009
Primary Examiner, Art Unit 2424

/Sari Sawaged/
Examiner, Art Unit 2423